Technical data sheet
Diffuse sensor with background suppression
Part no.: 50138062
HT110L1.3/L6T-M12



For Illustration purposes only

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Technical data

Basic data

Series	110
Operating principle	Diffuse reflection principle with background suppression
Application	Compartment fine positioning
	Danger zone guarding
	Push-through protection in pallet warehouse

Special version

Special version	2 independent switching outputs

Optical data

Black-white error	Black/white shift 6%/90% and gray/white shift 18%/90%: ± 40 mm
Operating range	Guaranteed operating range
Operating range, white 90%	0 ... 5 m
Operating range, black 6%	0.05 ... 3 m
Operating range limit	0 ... 5 m
Operating range limit	Typical operating range
Adjustment range	60 ... 5,000 mm
Beam path	Collimated
Light source	Laser, Red
Wavelength	655 nm
Laser class	1, IEC/EN 60825-1:2007
Max. laser power	0.391 W
Transmitted-signal shape	Pulsed
Pulse duration	0.006 µs
Light spot size [at sensor distance]	4 mm x 5 mm [3,000 mm]
Type of light spot geometry	Oval

Electrical data

Protective circuit	Polarity reversal protection
	Short circuit protected

Performance data

Supply voltage U_B	18 ... 30 V, DC
Residual ripple	15 %, From U_B
Open-circuit current	60 mA
Switching hysteresis	20 mm

Inputs

Number of teach inputs	1 Piece(s)

Teach inputs

Voltage type	DC
Switching voltage	high: $+U_B$

Teach input 1

Assignment	Connection 1, pin 5
Active switching state	High

Outputs

Number of digital switching outputs	2 Piece(s)

Switching outputs

Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: ≥(U_B-2V)

Switching output 1

Assignment	Connection 1, pin 4
Switching element	Transistor, Push-pull
Switching principle	IO-Link / light switching (PNP)/dark switching (NPN)

Switching output 2

Assignment	Connection 1, pin 2
Switching element	Transistor, Push-pull
Switching principle	Light switching (PNP)/dark switching (NPN)

Time behavior

Switching frequency	500 Hz
Response time	1 ms
Readiness delay	5,000 ms

Interface

Type	IO-Link

IO-Link

COM mode	COM2
Profile	Common Profile
Min. cycle time	COM2 = 2.3 ms
Frame type	2.2
Port type	A
Specification	V1.1
Device ID	0x00087E
SIO-mode support	Yes
Process data IN	2 bytes
Process data OUT	2 bytes
Dual Channel	No

Connection

Connection 1

Function	Signal IN
	Signal OUT
	Voltage supply
Type of connection	Connector, Turning, 90°
Thread size	M12
Type	Male
Material	Plastic
No. of pins	5 -pin
Encoding	A-coded

Mechanical data

Dimension (W x H x L)	23 mm x 50 mm x 50 mm
Housing material	Plastic
Plastic housing	ABS
Lens cover material	Plastic / PMMA
Net weight	42 g
Housing color	Red
Type of fastening	Through-hole mounting
	Via optional mounting device

Technical data

Operation and display

Type of display	LED
Number of LEDs	2 Piece(s)
Operational controls	Control buttons
	PC software
Function of the operational control	Range adjustment

Environmental data

Ambient temperature, operation	-40 ... 60 °C, UL: max. + 45 °C
Ambient temperature, storage	-40 ... 80 °C

Certifications

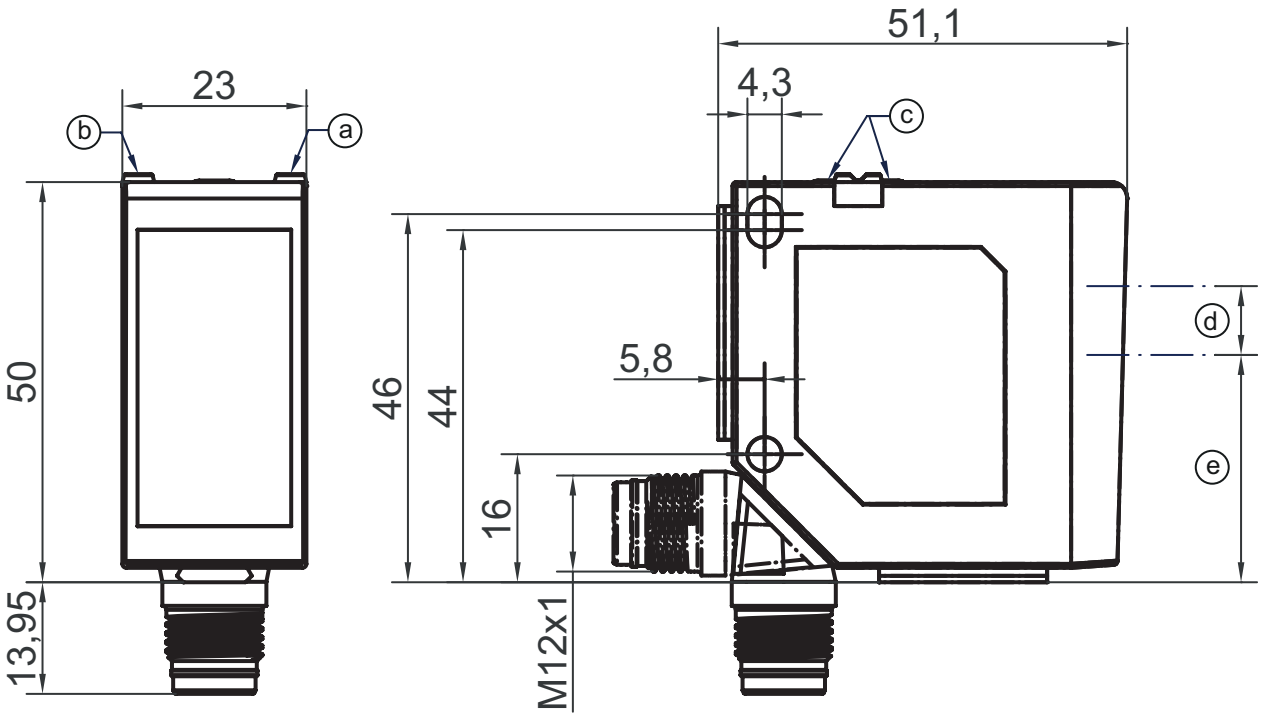
Degree of protection	IP 67
	IP 69K
Protection class	II
Approvals	c UL US
Standards applied	IEC/EN 60947-5-2

Classification

Customs tariff number	90318080
ECLASS 5.1.4	27270904
ECLASS 8.0	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ECLASS 13.0	27270903
ECLASS 14.0	27270903
ECLASS 15.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
ETIM 9.0	EC002719
ETIM 10.0	EC002719

Dimensioned drawings

All dimensions in millimeters



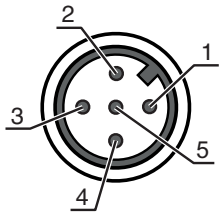
a Yellow LED
b Green LED
c Control buttons
d Transmitter
e Receiver

Electrical connection

Connection 1

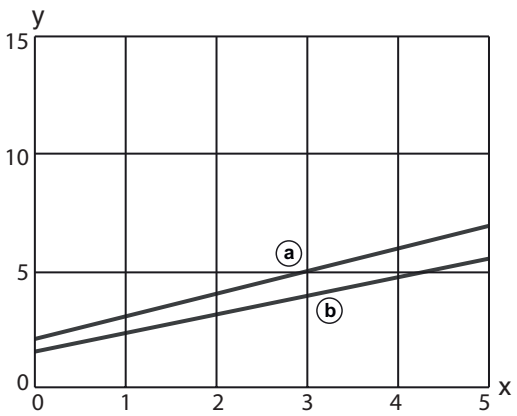
Function	Signal IN
	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Plastic
No. of pins	5 -pin
Encoding	A-coded

Pin	Pin assignment
1	V+
2	OUT 2
3	GND
4	IO-Link / OUT 1
5	Teach-in



Diagrams

Light spot size



x Distance [m]
y Size [mm]

a Vertical
b Horizontal

Operation and display

LED	Display	Meaning
1	Yellow, continuous light	Switching output/switching state
2	Green, continuous light	Operating voltage applied
	Yellow, continuous light	Switching output/switching state

Part number code

Part designation: **XXX110YY.Z/ABC-DDD**

XXX110	**Operating principle** ODS110: Optical distance sensor HT110: diffuse reflection sensor with background suppression
YY	**Light source** L1: laser class 1
Z	**Equipment** 3: Control buttons for configuration

Part number code

A	**Switching output/function OUT 1/IN: Pin 4 or black conductor** L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching)
B	**Switching output / function OUT 2/IN: pin 2 or white conductor** 6: push-pull switching output, PNP light switching, NPN dark switching C: Current output T: teach-in V: Voltage output
C	**Switching output / function OUT 3/IN: Pin 5** X: pin not used T: teach-in
DDD	**Electrical connection** M12: M12 connector

Note

- A list with all available device types can be found on the Leuze website at www.leuze.com.

Notes

Observe intended use!

- This product is not a safety sensor and is not intended as personnel protection.
- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.

ATTENTION! LASER RADIATION – CLASS 1 LASER PRODUCT

- Observe the applicable statutory and local laser protection regulations.

WARNING! LASER RADIATION – CLASS 1 LASER PRODUCT

The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of **laser class 1** as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to Laser Notice No. 50 from June 24, 2007.

- Observe the applicable statutory and local laser protection regulations.
- The device must not be tampered with and must not be changed in any way.
  There are no user-serviceable parts inside the device.
  Repairs must only be performed by Leuze electronic GmbH + Co. KG.

Configuration via IO-Link (see operating instructions)

- Object teach, average value teach for output 1 and 2, dynamic teach

Notes

Configuration via external teach
See operating instructions

Further information

- Ambient temperature, operation: UL: max. +45°
- Warmup time: minimum 20 min at +24 VDC and an ambient temperature of 20 °C

Accessories

Connection technology - Connection unit

	Part no.	Designation	Article	Description
	50144900	MD 798i-11-82/L5-2222	IO-Link master	Type: IO-Link master Current consumption, max.: 11,000 mA Switching outputs for each sensor connection: 1 Piece(s) Switching output: Transistor, PNP Interface: IO-Link, Automatic protocol detection, EtherNet IP, Modbus TCP, PROFINET Connections: 12 Piece(s) Sensor connections: 8 Piece(s) Connections for voltage supply: 2 Piece(s) Interface connections: 2 Piece(s) Degree of protection: IP 67, IP 65, IP 69K

Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50133855	KD S-M12-5A-V1-020	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 2.000 mm Sheathing material: PVC
	50133856	KD S-M12-5A-V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 5.000 mm Sheathing material: PVC
	50132077	KD U-M12-5A-V1-020	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 2.000 mm Sheathing material: PVC

Accessories

	Part no.	Designation	Article	Description
	50132079	KD U-M12-5A-V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5.000 mm Sheathing material: PVC

Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50117252	BTU 300M-D12	Mounting system	Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type, Suited for M4 screws Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal

Note

A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.